

AMENDMENTS TO THE CLAIMS

1. (previously presented): An apparatus for separating a multiphase mixture, separable into discrete density phases, the apparatus including:

a circular bowl rotatable about a central axis and having an opening through which the mixture is introduced into the bowl, whereby the rotation of the bowl separates the mixture to form annular columns of the discrete density phases,

a delivery conduit inserted into the bowl through the opening for introducing the mixture into the bowl, and

a collection assembly for removing the separated discrete density phases, the collection assembly comprising a collection conduit for collecting the annular columns, a waste collecting conduit, and a cleaning conduit,

wherein the collection assembly is movable as a single unit with respect to the bowl such that the collection assembly can be positioned within the bowl to sequentially, selectively and individually remove the annular columns from the bowl while the bowl is rotating substantially without disturbing the remaining annular columns within the bowl.

2. (original): An apparatus according to claim 1, wherein the collection assembly is positioned proximal to a surface of the annular column closest to the central axis during removal of the annular column.

3. (previously presented): An apparatus according to claim 1, wherein the collection assembly further comprises a pump connected to the collection conduit and/or the waste collecting conduit.

4. (canceled)

5. (previously presented): An apparatus according to claim 1, wherein the collection conduit is arranged such that the proximal end of the collection conduit extends substantially perpendicular to the central axis of the bowl.

6-7. (canceled)

8. (previously presented): An apparatus according to claim 1, wherein the bowl further includes a means for agitating and mixing components of the multiphase mixture in the bowl to form a mixture.

9. (previously presented): An apparatus according to claim 8, wherein the means for agitating and mixing the mixture is baffles positioned in the bowl.

10. (previously presented): An apparatus according to claim 1, wherein the collecting assembly further includes a means for identifying the discrete density media or boundary layers formed thereby and a means to control the movement of the collection assembly to allow for the sequential removal from the bowl of each discrete density media by either the collecting conduit or the waste collecting conduit.

11. (original): An apparatus according to claim 10, wherein the means for identifying the discrete density media is selected from optical, spectral, electrical conductivity or rheostatic analysis of the discrete density media.

12-14. (canceled)

15. (previously presented): A method of separating a multiphase mixture separable into discrete density phases, including the steps of:

introducing the mixture via a delivery conduit into a circular bowl, the bowl having an opening through which the delivery conduit is inserted and a central axis of rotation,

rotating the bowl about the central axis of the bowl such that the mixture is separated into annular columns formed by the discrete density phases, and

removing the discrete density phases from the bowl by a collection assembly comprising a collection conduit for collecting the annular columns, a waste collecting conduit, and a cleaning conduit,

wherein the collection assembly is movable as a single unit with respect to the bowl such that the collection assembly can be positioned within the bowl to sequentially, selectively and individually remove the annular columns from the bowl while the bowl is rotating substantially without disturbing the remaining annular columns within the bowl.

16. (original): A method according to claim 15, wherein the collection assembly is positioned proximal to a surface of the annular column closest to the central axis during removal of the annular column.

17. (canceled)

18. (previously presented): A method according to claim 15, wherein the flow rate of collection from the surface of the annular column is at least equal to the flow rate at which an equivalent volume within the annular column is presented for collection.

19. (canceled)

20. (previously presented): A method according to claim 15, wherein the method further includes the step of cleaning the bowl after removal of the discrete density phases from the bowl.

21. (previously presented): A method according to claim 15, wherein the steps of introducing a multiphase mixture, rotating the bowl and removing the discrete density media are repeated for at least one other multiphase mixture whilst the bowl is rotating.

22. (previously presented): A method according to claim 15, wherein the step of introducing the multiphase mixture into the bowl is achieved by introducing separate components of the multiphase mixture separately into the bowl and agitating and mixing the separate components in the bowl to form the multiphase mixture.

23. (previously presented): A method according to claim 22, wherein the agitating and mixing of the multiphase mixture is achieved by baffles positioned in the bowl.

24. (previously presented): A method according to claim 15, wherein the method further includes the step of identifying the discrete density phases or boundary layers formed thereby, and controlling the movement of the collection assembly such that each of the discrete density phases is removed from the bowl by either the collection conduit or the waste collection conduit.

25. (previously presented): A method according to claim 24, wherein the step of identifying the discrete density phases or boundary layers is performed using a means of detection selected from optical, spectral, electrical conductivity or rheostatic analysis of the discrete density phases in the bowl.

26. (currently amended): The method of A method according to claim 15, whereby nuclei of cellular material within the multiphase mixture are partitioned at a boundary layer of the discrete density phases.

27. (currently amended): The method of A method according to claim 15, whereby nucleic acids of cellular material within the multiphase mixture are partitioned in a discrete density phase.

28. (currently amended): The method of A method according to claim 15, whereby nucleic acids of cellular material within the multiphase mixture that are bound to a particle are partitioned at a boundary layer of the discrete density phases.